fracture healing is currently in progress.

3. Statins

Statins (HMG-CoA reductase inhibitors) are lipid-lowering drugs that inhibit cholesterol synthesis by blocking mevalonic acid production. Mevalonic acid is a precursor for both cholesterol and geranyl geranyl pyrophosphate (GGPP). Multiple intracellular pathways in osteoclast depend on the actions of GGPP, including those involved in maturation. By blocking these pathways, fracture repair may proceed through increased bone formation secondary to a decrease in bone turnover. In addition, statins have been shown to induce the BMP promoter in bone cells.

Oral simvastatin use has been shown to increase bone mineral density in several human studies and subsequent animal studies have supported these results. With regards to fracture healing, Skoglund et al. tested simvastatin in a mouse model of femur fractures. They produced internally stabilised femur fractures in 81 mature BALB/c mice. Half of these mice then received a daily oral dose of 120 mg/kg of simvastatin for up to 21 days. Their results showed that at day 14, the mechanical strength of the simvastatin group was 64% greater than in the control mice and the callus was 53% larger. Whilst their study did not find a continuation of these trends at 21 days, their study demonstrated that simvastatin could be effecting in accelerating the healing process.

The statins currently in use target the liver, and much of the drug is metabolised (first pass effect) and not available for action in bone. For this reason, systemic use of statins to target bone will require further development. In a study to test the local application of a statin, Garrett et al. combined lovastatin with biodegradable polymer nanobeads of poly(lactic-co-glycolide acid) and injected this mixture into femur fractures in rats. At 4 weeks, they noticed a decrease in the fracture gap as measured by microcomputed tomography. Clinical trials are necessary to determine if these studies will translate into clinically significant gains in fracture healing.

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Foot and ankle trauma

3.1

3: BTS–DGU joint session

Osteosynthesis of pilon fractures: Tips and tricks

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Pilon fractures are some of the most demanding fractures of the skeleton especially C-type fractures with additional severe soft tissue injury. Our concept of operative treatment is related to both the fracture type and the soft tissue damage. If possible B-fractures are treated by arthroscopy and fluoroscopy with reduction and percutaneous screw fixation or anterior buttressing using small plates. If soft tissues allow C1- and C2-fractures are treated with the AO pilon plate, through an open anterior or medial approach. In C-type fractures (43.C1–C3) with significant soft tissue damage, a 2-stage procedure with primary tibio-tarsal transfixation should always be performed. After 10–12 days, secondary fibula and tibia reconstruction should be performed and fixated with a pilon plate. In cases of types II/III fractures with severe closed soft tissue injuries, according to Tscherne, treatment should include minimally invasive open reduction through limited approaches or arthroscopy

combined with fluoroscopy. The fracture, would than be fixated by screws just for the joint block, combined with a hybrid fixator. In second and third degree open fractures a 2–3 stage procedure including local and free flap coverage is recommended. No infections, no nonunions and a very low rate of posttraumatic arthritis (11 versus 45 ORIF cases)[1] were seen in a small series with this minimal-invasive procedure combined with the use of a hybrid fixator.

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4A.1

4A: Trauma—Miscellaneous

Orthopaedic trauma research priority setting exercise and development of a research network

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Background: The UK orthopaedic trauma community recognises the importance of clinically relevant trials that have high utility and the potential to influence practice. Surgical trials are inherently difficult with problems around clinical equipoise, surgeon preference and participant acceptability, particularly comparing operative and non-operative treatments. Research activity can be maximised by collaboration in (a) the identification of important research questions and (b) involvement in clinical trials.
Methods: A Delphi survey was used to identify and prioritise the research questions felt to be of most importance and to determine consensus between the faculty members of the AOUK. A two-round process was used to elicit the research questions and then to rank them in order of priority.
Results: 255 members of the AOUK faculty were contacted to identify areas of contemporary practice that they considered needed quality research. 49 responders (19%) generated 147 questions. These were collated and the most frequently occurring questions (24) sent back out to all 255 for ranking by median scores. 121 (47%) responded to this second round and prioritised 10 clinical research questions. Literature searches for these 10 considered current knowledge of the subject. In addition, completed and ongoing research projects, advantages and disadvantages of undertaking a study and the most appropriate methodology were also considered. Feedback on the outcome of this exercise was reported to the faculty and a Research Conference planned to provide the opportunity for individuals to become involved, for current research projects to find support and new research projects to be developed.
Conclusion: The Delphi technique successfully prioritised research questions of importance to the AOUK membership, demonstrating an interest in developing a collaborative research strategy. Interested individuals and the level at which they might contribute were also identified, with a raised awareness of how to utilise the support of the national research networks.
Keywords: Delphi process; Research; Priority setting; Orthopaedic trauma

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4A.2

Payment by results (PbR) in orthopaedic trauma: Where are we losing?

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Background: Clinical coding has attracted significant interest recently as it has become synonymous with reimbursement. We hereby present the results of first and largest study in the UK involving 547 orthopaedic trauma cases wherein a meticulous in-depth analysis was performed.
Study design: Completed audit cycle.
Objectives: To review the existing coding for orthopaedic trauma, to ascertain accuracy of procedural codes and to identify limitations, implement changes, re-evaluate and close the audit loop.
Methods: All orthopaedic trauma surgeries (244 cases) performed over 1 month (March 2006) were comprehensively analysed. The primary procedural accuracy of OPCS4.2, its limitations and loss of revenue due to missing codes (6 patients) were determined. Changes were implemented to streamline/optimise financial reimbursement and improve data quality/accuracy by education/training. Electronic discharge summaries were implemented to enhance efficiency. The audit loop was subsequently closed to evaluate implementation of these changes by re-auditing all trauma surgeries performed in the same month the following year, i.e. March 2007 (303 cases) against OPCS4.3 codes.

Results: The primary procedural accuracy was 95.38% (11/238 coding errors) and omissions in 6 patients resulted in net loss of revenue of £13,700 for March 2006. Following the closure of audit loop in March 2007 after implementation of changes, the primary procedural accuracy was 98.95% (3/286 coding errors) and cumulative loss of revenue due to omissions in 17 patients was £46,750.
Discussion: Despite improvement in coding accuracy to 99% on closure of audit loop, there were increased financial losses for trauma directorate. An in-depth analysis is being performed to identify lacunae (training/staffing issues) as the trauma workload rose by 25% in a year.
Conclusion: Accurate and ethical coding is challenging having impact on data quality, audit and research in addition to reimbursement. Literature emphasises on legible documentation, liaison between coders and clinicians and education/training of healthcare professionals.
Keywords: Clinical coding; Payment by results (PbR); OPCS codes; Data quality

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4A.3

A practical VTE risk assessment score tool for patients treated with lower limb cast immobilization

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We have devised a unique VTE risk assessment score for patients treated with lower limb cast immobilisation.

The patient's VTE risk factors have weighted scores dependent on the severity of risk. The resulting overall score decides whether the patient is commenced on LMWH or not. The reliability of the risk